

103 based on Ikagawa in view of Kado (JP 4-288485). The Patent Office cites Kado Figures 1 and 5 for disclosing "that it is known to have a heat exchanger having its corrugated fins wider than the reinforcement member." In addition, claims 9 and 14 are rejected under section 103 as unpatentable based on either JP 9085541 or JP 61-25734 in view of Ikagawa. Dependent claim 15 is rejected under section 103 based on Ikagawa. Applicants respectfully traverse the rejections as explained below.

Concerning independent claim 1, Ikagawa does not disclose the structure as recited in claim 1 for fixedly inserting the insertion section of the reinforcement member into the reinforcement hole. Ikagawa discloses that the dimensions (length, thickness and width) of the side plate 11 are the same as the tubes 1. See Ikagawa, translation, page 1, paragraph [0010], page 3, paragraph [0015]. Here, Ikagawa only discusses the dimensions of the side plate and the tube, and does not describe the cross sectional shape of the side plate or the tube. Further, Ikagawa states that the ends of the side plate 11 have a rounded arc-shape in their flat-width direction (13a), and are tapered in an edge-width direction (13b). See Ikagawa, translation, page 1, paragraph [0010] and Figures 2(A) and 2(B); or page 4, paragraph [0015] and Figures 5(A) and 5(B). In this regard, Ikagawa gives no description of the vertical cross sectional shape of the edge longitudinal direction of the side plate. Ikagawa does not provide the person of ordinary skill in the art information on the cross section of the side plate as presented to the insertion hole.

Further, Ikagawa states that the insertion holes 15 have a shape coinciding with the front end 13 of side plate 11. Ikagawa, translation, page 1, paragraph [0011] and page 4, paragraph [0015]. As shown, the insertion hole 15 is formed in a tapered shape 15a in a depth direction of the holes (toward the radius direction of the header 2 for inserting the side plate 11). Ikagawa, translation, pages 1-2, paragraph [0011] and page 4, paragraph [0015]. Again, no description of the cross section of the insertion hole 15 is provided. The rounded arc-shape in the flat-width direction for the side plate (13a) does not provide information as to the cross section presented to the insertion hole and, therefore, the possible shape of the insertion hole.

As this foregoing discussion establishes, Ikagawa does not teach or suggest a reinforcement hole that has circular-arch section formed at both ends thereof and a linear section being formed between the circular arch sections. In addition, Ikagawa does not teach or suggest an insertion section of the reinforcement member having a rectangular

cross-section which provides a reliable fit with the recited reinforcement hole. Further, Ikagawa does not disclose or suggest that the insertion section of the reinforcement member has a specified width relative to the shape of the reinforcement hole. In fact, in Ikagawa, if the insertion hole is of the same shape as the front end 13 of the side plate, then the respective widths cannot be as claimed.

The Office Action states that Ikagawa discloses the shapes of the insertion section of the side plate. However, as the foregoing discussion shows, Ikagawa only discloses the flat-width and edge-width directions; Ikagawa provides no indication of the cross sectional shapes of the tube and side plate. Even further, even if one concluded that in Ikagawa the reinforcement holes have circular-arch sections and a linear portion, corresponding to the side plate (which is not true), the feature that the insertion section of the reinforcement member has a rectangular cross section with a predetermined width (which is between the whole width of the reinforcement hole and the length of the linear section) so as to fit to the hole is not obvious in view of Ikagawa because Ikagawa teaches forming a side plate coinciding to the tube, which generally does not have a rectangular cross section.

In short, claim 1 is patentable over the cited art.

As to independent claim 5, the Office Action does not address the discrepancy in the figures of Kado as to the teaching of the relative widths of the fins 30 and plates 40. The person of ordinary skill in the art would not have any clear teaching in Kado as to the relative widths of fins 30 and plates 40, based on Figures 1 and 3, which are directed to the same embodiment as Figure 5. The person of ordinary skill in the art looks to the entire reference as a whole, and in doing so, would have no definitive conclusion on the respective widths of the fins and plates. Figures 1 and 3 would indicate to the person of ordinary skill in the art that the fins and plates are of the same width (or perhaps the fins are slightly smaller in width than the plates). Therefore, Kado does not disclose to the person of ordinary skill in the art that the fins are wider than the plates. Further, the Office Action fails to address the argument that the person of ordinary skill in the art would not find it obvious to further extend the fins beyond the tubes in Ikagawa since it would undesirably cause an increase in lateral width of the heat exchanger. Further, Applicants do not see motivation in applying the asserted width feature of Kado with the outward C shape cross section of the side plate of Ikagawa. In addition, Applicants' representative

does not find the statement in Kado that states that the heat exchange efficiency is increased with having wider corrugated fins, as suggested by the Office Action on page 5. Considering the lack of evidence surrounding Kado, Applicants believe that the obviousness rejection made using Kado is improper, and claim 5 is allowable.

As to claim 9, the Office Action has improperly classified this claim as a product-by-process claim. Claim 9 is a method of assembly, i.e., a pure process claim. It is not a product-by-process claim. The case relied in the Office Action, In re Thorpe, 777 F.2d 695 (Fed. Cir. 1985) supports Applicants' position. Thus, in Thorpe, claim 1 in the application recited: "1. In the process of preparing a metal-modified novolac phenolic resin" Id. at 696. The Court explicitly stated that this was a process claim. Id. The product-by process claim in that case recited: "44. The product of the process of Claim 1." In the present application, claim 9 recites a "method of assembling a heat exchanger core" (following by steps of the method), which is a process claim that is analogous to claim 1 of the Thorpe application. As pointed out in the previous reply, none of the cited art shows having tube guides on opposite sides of the base member and keeping the tubes at a spaced distance from the horizontal guide member that supports the fins, as recited in claim 9. This achieves the advantage noted at page 16, lines 12-20 of the application. Thus, claim 9 is patentable over the cited art.

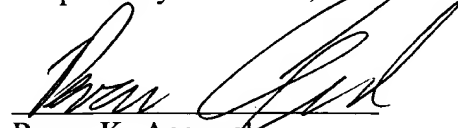
In addition, the dependent claims are patentable for at least the reasons noted in connection with the independent claims, and therefore it is not necessary for applicants to address all the specific comments in the Office Action as to these claims.

In short, Applicants respectfully assert that the pending claims are patentable over the cited art.

CONCLUSION

In view of the foregoing, it is respectfully urged that the present claims are in condition for allowance. An early notice to this effect is earnestly solicited. Should there be any questions regarding this application, the Examiner is invited to contact the undersigned at the number shown below.

Respectfully submitted,



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